**Amendments to the Claims:**

This listing of claims will replace all prior versions and listings of claims in the application. Please note that claims 1 and 9 have been amended and new claims 20-33 have been added.

**Listing of Claims:**

Claim 1. (*Currently Amended*) A method of calculating an index indicative of anaesthetic depth, the method comprising:

subjecting a patient to a repetitive audio stimulus;

monitoring auditory evoked potentials (AEP) produced by the patient;

providing a signal corresponding to the coarseness of the monitored AEP signal, the coarseness of the signal being a single measure increasing and decreasing with both amplitude and frequency of variations in the ~~signal~~ AEP signal; and

using said signal as said index indicative of anaesthetic depth.

Claim 2. (*Original*) A method as claimed in claim 1 wherein the monitored or raw AEP signal is divided into a series of sweeps or frames of a given duration, each sweep being synchronised with the repetitive audio stimulus.

Claim 3. (*Original*) A method as claimed in claim 2 wherein a number of sweeps n are recorded in sequence and are averaged to produce a time averaged sweep and for the time averaged sweep the anaesthesia index is calculated.

Claim 4. (*Original*) A method as claimed in claim 3 wherein each time a new series of sweeps is recorded, a new time averaged sweep is determined from the most recent n sweeps and the anaesthesia index for that time averaged sweep calculated.

Claims 5-6. (*Canceled*)

Claim 15. (*Previously Presented*) A method as claimed in claim 4, wherein for a moving time averaged sweep this measure is a function of the sum of the square roots of the difference between every two adjacent sample points in the time averaged sweep.

Claim 18. (*Previously Presented*) A method of maintaining closed-loop control of an anaesthesia depth, the method comprising supplying a dosage of anaesthetic to a patient, calculating an anaesthetic depth index according to claim 1, and using the value of the anaesthetic depth index to regulate the anaesthetic supply to maintain the anaesthesia depth index at or near a predetermined level.

Claim 9. (*Currently Amended*) A system for calculating an index of anaesthetic depth, the system comprising: a signal generator for subjecting a patient to a repetitive audio stimulus, electroencephalographic (EEG) recording means for coupling to said patient for recording auditory evoked potential (AEP) signal from the patient, and computer means for receiving said AEP signal, and for processing said AEP signals and generating an index signal indicative of the coarseness of the recorded AEP signal, the coarseness of the signal being a single measure increasing and decreasing with both amplitude and frequency variations of the AEP signal, said index signal being representative of the depth of anaesthesia.

Claim 10. (*Original*) An anaesthetic supply control system including a system for calculating an index of anaesthetic depth for a patient as claimed in claim 9 including anaesthetic supply means and a regulator for receiving said input signal, said regulator having received a predetermined anaesthetic depth index and said regulator comparing said index signal and said predetermined signal and providing a control signal to said anaesthetic supply means for regulating the supply of anaesthetic to the patient to maintain the anaesthetic depth index at a predetermined level.

Claim 11. (*Previously Presented*) A method as claimed in claim 1 wherein the raw AEP signal is sampled at regular intervals to produce a digitized AEP signal.

Claim 12. (*Previously Presented*) A method as claimed in claim 2 wherein the raw AEP signal is sampled at regular intervals to produce a digitized AEP signal.

Claim 13. (*Previously Presented*) A method as claimed in claim 3 wherein the raw AEP signal is sampled at regular intervals to produce a digitized AEP signal.

Claim 14. (*Previously Presented*) A method as claimed in claim 4 wherein the raw AEP signal is sampled at regular intervals to produce a digitized AEP signal.

Claim 15. (*Previously Presented*) A method as claimed in claim 1 wherein an indication of coarseness is obtained by measuring the differences between neighboring sample points.

Claim 16. (*Previously Presented*) A method as claimed in claim 2 wherein an indication of coarseness is obtained by measuring the differences between neighboring sample points.

Claim 17. (*Previously Presented*) A method as claimed in claim 3 wherein an indication of coarseness is obtained by measuring the differences between neighboring sample points.

Claim 18. (*Previously Presented*) A method as claimed in claim 4 wherein an indication of coarseness is obtained by measuring the differences between neighboring sample points.

Claim 19. (*Canceled*)

Claim 20. (*New*) A method as claimed in claim 1, wherein said index is calculated and used without reference to a measured latency of any peak in the AEP signal.

Claim 21. (*New*) A method as claimed in claim 3, wherein said index is calculated and used without reference to a measured amplitude of the time averaged sweep.

Claim 22. (*New*) A method as claimed in claim 3, wherein said index is calculated and used without reference to a measured EEG power.

Claim 23. (*New*) A system as claimed in claim 9, wherein said computer means is arranged to measure coarseness by reference to differences between neighboring samples of the AEP signal.

Claim 24. (*New*) A system as claimed in claim 23, wherein said computer means is arranged to measure coarseness by summing the square roots of the differences between neighboring samples of the AEP signal.

Claim 25. (*New*) A system as claimed in claim 9, wherein said index is calculated and used without reference to a measured latency of any peak in the AEP signal.

Claim 26. (*New*) A system as claimed in claim 25, wherein said index is calculated and used without reference to a measured amplitude of the time averaged sweep.

Claim 27. (*New*) A system as claimed in claim 26, wherein said index is calculated and used without separately measuring EEG power.

Claim 28. (*New*) A method as claimed in claim 1, wherein said index is calculated and used without relying on data measured previously for the same patient at a known depth of anaesthesia.

Claim 29. (*New*) A system as claimed in claim 9, wherein said index is calculated an used without relying on data measured previously for the same patient at a known depth of anaesthesia.

Claim 30. (*New*) A method of calculating an index indicative of anaesthetic depth, comprising:

subjecting a patient to a repetitive audio stimulus;

monitoring audio evoked potential (AEP) signals produced by the patient; and

providing a signal corresponding to the coarseness of the monitored AEP signal, and using said signal as an index indicative of anaesthetic depth, the coarseness of the signal being a measure of curvature in the AEP signal.

Claim 31. (*New*) A method of calculating an index indicative of anaesthetic depth, comprising:

subjecting a patient to a repetitive audio stimulus;

monitoring audio evoked potential (AEP) signals produced by the patient; and

providing a signal corresponding to the coarseness of the monitored AEP signal, and using said signal as an index indicative of anaesthetic depth, the coarseness of the signal being obtained as a mathematical derivative with respect to time of the AEP signal.

Claim 29. (*New*) A system for calculating an index of anaesthetic depth, the system comprising:

a signal generator for subjecting a patient to repetitive audio stimultus;

electroencephalographic (EEG) recording means for coupling to said patient for recording an auditory evoked potential (AEP) signal; and

a processor for processing successive AEP signals to generate and index signal by measuring the coarseness of the recorded AEP signal, the coarseness of the signal being obtained as a mathematical derivative with respect to time of the AEP signal, said index being indicative of the depth of anaesthesia of the patient.

Claim 30. (*New*) A system for calculating an index of anaesthetic depth, the system comprising:

a signal generator for subjecting a patient to repetitive audio stimultus;

electroencephalographic (EEG) recording means for coupling to said patient for recording an auditory evoked potential (AEP) signal; and

a processor for processing successive AEP signals to generate and index signal by measuring the coarseness of the recorded AEP signal, the coarseness of the signal being obtained by differentiating the AEP signal with respect to time, said index being indicative of the depth of anaesthesia of the patient.